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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/284,160 10/25/99 EYAL

A U012190-3

EXAMINER

HM12/0719

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NEW YORK NY 10023

OH.T

ART UNIT

PAPER NUMBER

1623

DATE MAILED:

07/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

# Office Action Summary

Application No.

09/284,160

Applicant(s)

Eyal et al

Examiner

TAYLOR VICTOR OH

Art Unit

1623



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) ☒ Responsive to communication(s) filed on Apr 30, 2001

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

## Disposition of Claims

4) ☒ Claim(s) 19-34 is/are pending in the application

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 19-34 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirements

## Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some\* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_

18) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

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**Status of Claims:**

Claims 1-18 have been canceled.

Claims 19-34 have been rejected.

1. Applicants' arguments with respect to claims 19-34 have been considered but are moot in view of the new ground(s) of rejection.
2. The rejection of claims 1 and 18 has been withdrawn due to the modification in the claims.

***Claim Rejections - 35 USC § 103***

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 19-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baniel et al (U.S. 5,510,526) in view of Metz et al (U.S. 4,282,385) .

Baniel et al discloses a process for the recovery of lactic acid, from a lactate solution composed of sodium lactate, calcium lactate or potassium lactate (see col. 11 , lines 33-34), from a fermentation broth at a pH in the range of 5.5 to 6.5 (see col. 6 , lines 6-7) by using a long-chain trialkyl amine in the presence of carbon dioxide by way of extraction (see col. 3 , lines 39-44). In the process the organic phase obtained from the primary extraction is further subjected to a separation process such as back extraction, vaporization (see col. 4 , lines 60-65) to recover 97 % lactic acid from the original mixture (see col. 11 , lines 8-9); the solvent can be used with water

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for the purpose of diluting viscous trialkyl amines or enhancing the extraction (see col. 4 , lines 42-46). Also, the reference teaches that it is plausible to recover the lactic acid by acidifying the fermentation broth with sulfuric acid; as a result, a sulfate salt is formed (see col. 1 , lines 55-59).

However, the instant invention differs from Baniel et al in that the ratio between free lactic acid and lactate salt is not mentioned.

Metz et al teach a process of manufacturing compounds more than 3 moles of free lactic acid per mole of calcium lactate by using calcium oxide, calcium hydroxide, and calcium carbonate (see col. 2 , lines 28-33).

Therefore, if person having an ordinary skill in the art had wished to increase the yield of the lactic acid, it would have been obvious for the skillful artisan in the art to have used Metz et al's ratio between free lactic acid and lactate salt in the fermentation broth in the Baniel et al's process for the recovery of the lactic acid in order to increase the efficiency of the overall process.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Eyal et al (U.S. 5,766,439) discloses a process for producing an organic acid in the following steps : producing an organic acid by fermentation, adding an alkaline earth base to the fermentation, reacting the alkaline earth salt of the organic acid with a source of ammonium ions, reducing the concentrations of divalent cations, and converting the ammonium of the organic acid to free organic acid.

Sterzel et al (U.S. 5,453,365) discloses a preparation of lactates by fermentation of the mixture of sugars, conversion of the lactic acid followed by esterification during the process, in which the lactic acid is neutralized with an alkaline earth metal carbonate, added with ammonia and carbon dioxide, and the purified ammonium lactate solution is esterified with an alcohol.

Urbas (U.S. 4,444,881) discloses a process for the recovery of organic acids from dilute aqueous solutions in the following steps: adding a water-soluble tertiary amine carbonate to the calcium salt solution to form the trialkylammonium salt of the acid, and heating the concentrated trialkylammonium salt solution to obtain the acid and the amine.

Cockrem et al (U.S. 5,210,296) discloses a process for producing a high pure lactate ester or lactic acid from a concentrated fermentation broth by acidification in the presence of an alcohol with sequential esterification, distillation of high purity ester.

Walkup et al (U.S. 5,252,473) discloses a process of producing lactic acid and esters of lactic acid in the following reactions. In the first reaction, ammonium lactate produced by a fermentation process of carbohydrate materials can be decomposed into  $\text{NH}_3$  and lactic acid; in the second reaction, the lactic acid can be further esterified with methanol to yield methyl lactate.


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In the esterification of the ammonium lactate to the alkyl lactate, the reaction mixture pressure is from 1 atmosphere to 200 atmospheres and the reaction temperature is from 100° C. To 200° C.; besides, the range for the molar ratio of alcohol to ammonium salt in the reaction mixture is from 1:1 to 10:1. In the process, in order to increase the yield of methyl lactate,  $\text{NH}_3$  can be either removed or recycled to produce ammonium lactate .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Victor Oh whose telephone number is (703) 305-0809. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Geist, can be reached on (703) 308-1701. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

*7/17/2001*

  
PAUL J. KILLOS  
PRIMARY EXAMINER  
A.U. 1623